REMARKS

The specification has been amended to correct two typographical errors that were discovered upon its rereading in the paragraph that begins on page 9 and extends over to page 10. In two locations the reference number "4" was corrected to reference number 6 to agree with Fig. 1B that is under discussion in the portion of the Specification. No new matter has been added to the Specification.

Claims 1, 2, 6, 8-14, 16-25, 27-51, 53 and 56-74 have been allowed by the Examiner. Of those claims, claim 56 was cancelled in the previous response.

Claim 52 was rejected by the Examiner under 35 USC §102(b) as being anticipated by a publication by Kramer et al. that appeared in IEEE Electron Device Letters, vol. 17, No. 10. Claim 52 has been amended in response to that rejection.

Claim 52 as amended calls for:

> "A method for implanting dopant atoms into a semiconductor substrate comprising the step of directing a beam of dopant atoms to a surface of the semiconductor substrate with sufficient energy so that the dopant atoms are distributed to a predetermined depth from the surface of the substrate, the energy, dose and pulse duration imparted by the beam of dopant atoms being sufficient to raise the temperature of the substrate atoms to permit annealing of the dopant atoms." (emphasis added)

The Kramer, et al. paper cited by the Examiner describes the creation of shallow diode junctions using gas immersion laser doping (GILD). In this process the wafer is placed in a sealed chamber, which is evacuated and then filled with a gas containing the desired dopant (e.g., BF_3 gas). A pulsed laser beam enters the chamber through a window and heats the wafer where junctions are desired. The intensity of the laser

beam being sufficient to temporarily melt a very thin layer on the top of the wafer and the molten silicon pyrolizes the surrounding dopant containing gas and incorporates the dopant into the melted silicon. The depth of the molten region determines the depth of the doped junction and the pressure of the dopant containing gas and the number of laser pulses determines the final dopant concentration in the junction.

Thus it can easily be seen that the source of both the dopant and the energy to heat the surface of the substrate in claim 52 is one and the same, the beam of dopant atoms. Whereas in the Kramer, et al. paper there are two separate sources: a gas in the chamber with the substrate containing the dopant thus being the source of the dopant; and the laser beam directed to the point on the substrate that is to be doped providing the heat to melt a portion of the surface of the substrate to cause pyrolization of the dopant atoms into the substrate.

Thus it can be seen that claim 52 as amended clearly is distinguishable from the teaching of the Kramer, et al. paper. Therefore claim 52 is now patentably distinguishable from the cited references and allowable.

All claims now being allowable, it is respectfully requested that the Examiner issue a Notice of Allowability for the above identified application.

Favorable action is respectfully requested.

Respectfully submitted,
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